

T. TYPHOON ELLEN (050600Z-131800Z DECEMBER 1961)

TYPHOON ELLEN'S ORIGIN WAS THE SAME AS THAT OF SEVERAL LATE SEASON CYCLONES WHICH DID NOT DEVELOP TO STORM INTENSITY. IT CAN BE TRACED BACK TO THE VICINITY OF TRUK ISLAND, WHERE THERE WAS SUFFICIENT DATA TO SUPPORT THE EXISTENCE OF A CLOSED CIRCULATION. AS IT MOVED WESTWARD INTO THE "NO DATA" AREA S OF GUAM, ITS PRESENCE COULD ONLY BE SUBSTANTIATED BY PERSISTENCY. MANY SIMILAR CYCLONES HAVE FAILED TO REAPPEAR IN THE YAP-KOROR AREA, BUT THIS WAS NOT THE CASE WITH ELLEN. SHE ARRIVED IN THE WESTERN CAROLINES "ON SCHEDULE" WITH A WELL DEFINED CIRCULATION OF SLIGHT INTENSITY. THE FIRST TROPICAL DEPRESSION WARNING WAS ISSUED AT 050600Z WHEN THE SYSTEM SHOWED SIGNS OF POSSIBLE DEVELOPMENT.

TROPICAL DEPRESSION WARNINGS WERE CONTINUED FOR TWO DAYS WHILE THE SYSTEM BECAME PROGRESSIVELY MORE WELL DEFINED. FINALLY AT 070600Z THE FIRST TROPICAL STORM ELLEN WARNING WAS ISSUED BASED ON A RECONNAISSANCE FIX WHICH REPORTED 45 KT SURFACE WINDS. ELLEN THEN INTENSIFIED RAPIDLY REACHING TYPHOON STRENGTH AT 071200Z AND ATTAINED HER MAXIMUM INTENSITY OF 130 KTS AT 081200Z. SHE HAD BEEN MOVING IN A NEARLY STRAIGHT LINE TOWARD THE WNW UNTIL THIS TIME. SHE PASSED NEAR CATANDUANES ISLAND SHORTLY AFTER 090000Z AND THEN TURNED TOWARDS THE NNE. AFTER THIS TURN, ELLEN'S TRACK BECAME IRREGULAR, SHOWING SEVERAL MINOR HEADING CHANGES WHILE MAINTAINING A CONSTANT 6 KT SPEED OF MOVEMENT. THIS IS CONSIDERED TYPICAL OF A TYPHOON WHICH RECURVES THROUGH THE SUBTROPICAL RIDGE LINE INTO AN AREA OF WEAK ZONAL FLOW. AFTER REINTENSIFYING TO 125 KTS ELLEN STARTED TO WEAKEN, DROPPING BELOW TYPHOON INTENSITY AT 121200Z AND DISSIPATING ENTIRELY SHORTLY AFTER 131800Z.

A TOTAL OF 35 WARNINGS WERE ISSUED COVERING A PERIOD OF 8 DAYS AND 12 HOURS. DURING THIS PERIOD, ELLEN TRAVELED 1400 MI AT AN AVERAGE SPEED OF 7 KTS. HER MAXIMUM SPEED WAS 12 KTS ON 5 DECEMBER AND THE MINIMUM SPEED OF 3 KTS OCCURRED DURING RECURVATURE ON 9 DECEMBER.

ELLEN PASSED WITHIN 10 MI OF THE N TIP OF CATANDUANES ISLAND. THE EYE OF THE TYPHOON WAS 36 MI IN DIAMETER AT THAT TIME, THEREFORE THE COAST GUARD LORAN STATION ON THE ISLAND RECEIVED THE IMPACT OF THE STRONG WINDS ASSOCIATED WITH THE WALL CLOUD TWICE. NEWS RELEASES INDICATED THE PROPERTY DAMAGE TO BE ABOUT \$500,000. THE LORAN STATION MADE PREPARATIONS FOR THE PASSAGE ON 7 AND 8 DECEMBER, AND BECAUSE OF THIS, INJURIES TO PERSONNEL WERE MINIMIZED. ONE ENTRY, IN THE LETTER DESCRIBING THE TYPHOON PASSAGE, MADE AT 1800, INDICATES THE FINAL PREPARATIONS PRIOR TO TYPHOON WINDS: "1800, 8 DECEMBER 1961 (N, 33 KTS, 29.58") ALL HANDS MOVED TO SIGNAL-POWER BUILDING. SECURED LOWER STATION EXCEPT FOR POWER (HOT LOCKERS, FUEL AND WATER PUMPS), FRESH WATER, AND FUEL OIL CONNECTIONS. TRUCK PARKED BETWEEN WATER TANKS AND SIGNAL-POWER BUILDING."

A DESCRIPTION OF THE PASSAGE OF THE TYPHOON IS AS FOLLOWS:

A. 2400, 8 DECEMBER 1961 (NE, 45-65 KTS, 29.43") CRACK BETWEEN ROOF JOINT OF SIGNAL ROOM AND POWER ROOM OPENED. LEAKS NECESSITATE MOVING ALL EEE GEAR ON BULKHEAD SHELF OF THE HOT LOCKER TO OTHER SHELVES.

B. 0100, 9 DECEMBER 1961 (N, 45-65 KTS, 29.40") SECURED OUTSIDE TEMPERATURE READINGS DUE TO HIGH WINDS. WATER BEING DRIVEN THROUGH COMMUNICATIONS TRANSMITTING ANTENNA LEAD-IN TERMINAL BOARD AND THROUGH LORAN TRANSMITTER VENT DUCTING INTO THE NORTH END OF BUILDING. ESTABLISHED BUCKET BRIGADE. WATER IS RUNNING ONTO POWER DISTRIBUTION AND SWITCH BOXES BELOW THESE ENTRY POINTS.

C. 0303, 9 DECEMBER 1961 (NNE, 62-85 KTS, 29.22") OBSERVED NO PULSE ON PEDESTAL, USWR AT 10:1 AND TRANSMITTER LINE CURRENT AT 1.9 AMPS. SECURED LORAN TRANSMISSION. REPORTED ANTENNA DOWN. (LATER DISCOVERED THAT ANTENNA WAS NOT DOWN, BUT SEAS HAD WASHED OVER COUPLERS AND SHORTED AND GROUNDED THEM.)

D. 0335, 9 DECEMBER 1961 (UP TO 100 KTS, 29.11") ANEMOMETER IMPELLER GONE. RAIN AND SPRAY DRIVING HORIZONTALLY. NORTH WALL CONTINUES TO LEAK. SIDE DOOR TO SIGNAL ROOM BEGAN POUNDING TO EQUALIZE PRESSURE. ATTEMPTED TO SECURE WITH NAILS AND LINE FROM INSIDE.

E. 0558, 9 DECEMBER 1961 (N, 120 TO 140 KTS EST., 28.80") HOUSEHOLD GENERATOR LOAD VERY ERRATIC. SECURED POWER TO LOWER STATION. (LATER DETERMINED THAT THIS IS TIME WHEN OFFICE BUILDING WAS DESTROYED.) SIDE DOOR CONTINUES TO POUND THOUGH SECURED.

F. 0715, 9 DECEMBER 1961 (N, 120 TO 150 KTS EST., 28.51") LARGE GENERATOR ROOM DOORS BURST OPEN. CLOSED, BARRED, AND NAILED THEM SHUT. ADDED NAILS AND LINE TO SIDE DOOR. STILL SECURE.

G. 0735, 9 DECEMBER 1961 (N, 120 TO 150 KTS EST., 28.17") LIGHT SWITCH IN PASSAGEWAY SHORTED BY WATER FROM ROOF, CAUGHT FIRE AND BURNED ITSELF OUT BEFORE CO2 WAS BROUGHT ON IT. ISOLATED SWITCH AND REPAIRED IT.

H. 0800, 9 DECEMBER 1961 (N, 120 TO 150 KTS EST., 28.15") ALL COMMUNICATIONS ANTENNA DOWN. CONNECTED LORAN RECEIVING ANTENNA TO COMMUNICATIONS RECEIVER. UNABLE TO TRANSMIT.

I. 0915, 9 DECEMBER 1961 (VARIABLE, 30 KTS EST., 28.07") LIGHT WINDS AND RAIN, SKY SLIGHTLY OVERCAST. DISPATCHED TWO TEAMS TO ROUND UP NATIVES WHO DID NOT COME UP TO SIGNAL-POWER BUILDING BEFORE STORM. TEAMS BROUGHT BACK APPROXIMATELY 40 PEOPLE. OBSERVED DAMAGE TO LOWER STATION.

J. 1000, 9 DECEMBER 1961 (LIGHT WINDS, 28.01") LOWEST BAROMETRIC PRESSURE OBSERVED. SEAS ARE BREAKING OVER ENTIRE ANTENNA FIELD.

K. 1130, 9 DECEMBER 1961 (W, 50 TO 70 KTS EST., 28.38") EYE PASSED AND WINDS INCREASED DRIVING RAIN AND SPRAY. OPENED EAST WINDOW TO OBSERVE WAVE ACTION ON ANTENNA FIELD. WAVES ROLLING IN AS FAR AS LORAN RECEIVING HILL. CAN SEE THAT LORAN TRANSMITTING ANTENNA IS STILL UP.

L. 1430, 9 DECEMBER 1961 (W, 130 TO 160 KTS EST.) WIND MUCH STRONGER SECOND HALF. GENERATOR ROOM WEST DOOR BURST OPEN AND TORE OFF. PRESSURE NOW EQUALIZED. DOOR TO GENERATOR EXHAUST HOT ROOM ALSO GONE.

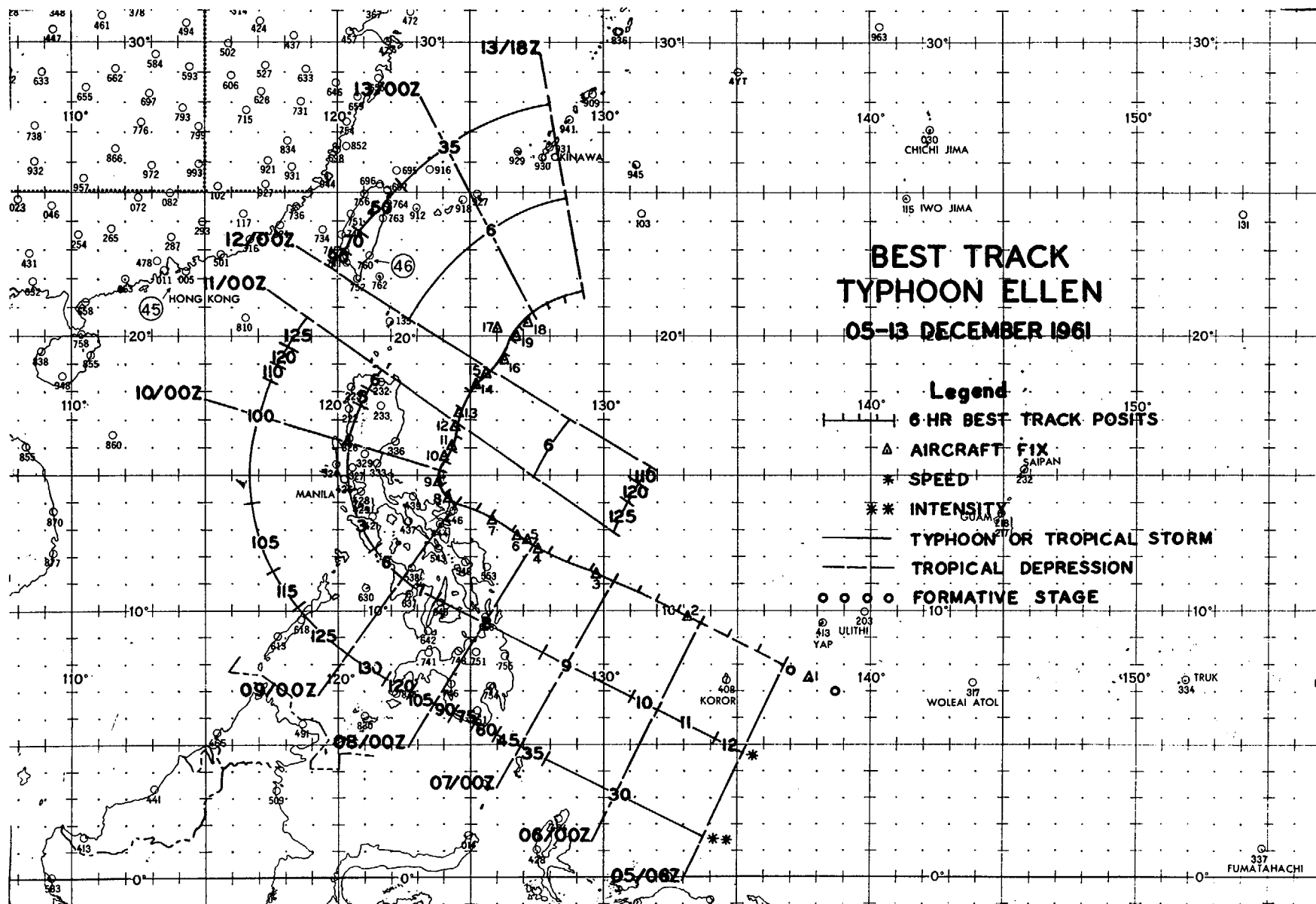
M. 1800, 9 DECEMBER 1961 (W, 30 TO 50 KTS EST., 29.18") BELIEVE TYPHOON PASSED. DUE TO DARKNESS AND GUSTING WINDS, NOT ATTEMPTING OUTSIDE REPAIRS UNTIL DAYBREAK. REMAINING IN SIGNAL-POWER BUILDING OVERNIGHT.

N. 0600, 10 DECEMBER 1961 (W, 8 TO 30 KTS, 29.50") OBSERVED DAMAGE. BEGAN REPAIRING LORAN COUPLERS AND RESTRINGING TRANSMITTING ANTENNAS.

O. 0653, 10 DECEMBER 1961 (W, 10 TO 30 KTS, 29.51") RESUMED COMMUNICATIONS WITH SANGLEY POINT.

P. 1230, 10 DECEMBER 1961 (SW, 10 KTS, 29.62") RESUMED LORAN TRANSMISSIONS.

DAMAGE WAS EXTENSIVE, INCLUDING THE ELECTRICAL, WATER AND SEWAGE SYSTEMS, AND NEARLY ALL BUILDINGS AND VEHICLES. THE DAMAGE WAS DUE TO HIGH WINDS, FLYING OBJECTS, FLOODING AND RAIN. IN MANY CASES SEVERAL FEET OF SAND REMAINED BEHIND TO BE REMOVED LATER.



LAND RADAR AND AIRCRAFT - TYPHOON ELLEN

FIX NO.	TIME	LAT.	LONG.	UNIT METHOD & ACCY	MAX SFC WND	MIN 700MB WND	MIN 700MB HGT	MIN SLP MBS	700MB T/Td (°C)	EYE CHARACTERISTICS
1	050100Z	07.5N	137.8E	VW1-P-10	22	---	----	---	-----	80MI DIA WELL DEVELOPED FEEDER BANDS
2	060400Z	09.8N	133.1E	VW1-P-05	30	---	9970	995	12/11	CIRC 15MI DIA POORLY DEFINED
3	070316Z	11.4N	129.9E	VW1-P-05	45	---	9980	988	12/12	CIRC 24MI DIA OPEN N & S
4	072245Z	12.4N	127.5E	56-P-05	100	90	9280	---	19/11	CIRC 25MI DIA
5	080056Z	12.7N	127.1E	VW1-R-05	---	---	----	---	-----	CIRC 23MI DIA
6	080400Z	12.9N	126.8E	56-P-05	100	70	9120	---	19/14	NOT WELL DEFINED
7	081200Z	13.5N	125.9E	VW1-R-02	---	---	----	---	-----	CIRC 33MI DIA WALL CLDS ALL QUADS
8	090300Z	14.2N	124.2E	56-P-02	85	90	8520	945	23/23	CIRC 36MI DIA OPEN SE
9	091445Z	14.7N	123.8E	VW1-R-05	---	---	----	---	-----	CIRC 28MI DIA
10	100120Z	15.7N	124.0E	56-P-03	60	70	8930	956	15/02	CIRC 20MI DIA WELL DEFINED
11	101400Z	16.0N	124.3E	VW1-R-03	---	---	----	---	-----	ELLIP NW-SE 35 X 29 MI
12	102230Z	16.9N	124.5E	56-P-02	150	105	8740	---	19/12	ELLIP E-W 25 X 35 MI
13	110300Z	17.2N	124.6E	56-P-01	150	95	8760	---	19/14	CIRC 40MI DIA
14	111400Z	18.1N	125.2E	VW1-R-01	---	---	----	---	-----	EYE SPLIT INTO HALF SEMICIRCLES N HALF CLOSING, S HALF DSPTG
15	112235Z	18.7N	125.8E	56-P-02	140	90	9390	---	16/09	OPEN W & S ORIENTED E-W 25 X 20 MI
16	120430Z	19.2N	126.3E	56-P-02	175	70	9530	980	13/12	NOT DEFINED ON RADAR, SOFT HAIL IN EYE
17	121330Z	20.2N	126.0E	VW1-R-05	---	---	----	---	-----	10MI DIA OPEN S
18	130200Z	20.4N	127.1E	56-P-02	30	20	10300	1009	12/07	NOT DEFINED
19	131312Z	20.0N	126.8E	VW1-P-05	---	---	10290	---	-----	CENTER 25MI E-W 30MI N-S, NO WALL CLDS

TYPHOON ELLEN 05-13 DEC 1961
POSITION AND FORECAST VERIFICATION DATA

DTG	STORM POSITION		24 HR. ERROR	48 HR. ERROR
	LAT.	LONG.	DEG. DISTANCE	DEG. DISTANCE
050600Z	08.0N	136.8E	-----	-----
051200Z	08.5N	135.7E	-----	-----
051800Z	09.0N	134.7E	-----	-----
060000Z	09.5N	133.7E	-----	-----
060600Z	10.0N	132.8E	-----	-----
061200Z	10.4N	132.0E	-----	-----
061800Z	10.8N	131.2E	-----	-----
070000Z	11.2N	130.3E	-----	-----
070600Z	11.6N	129.5E	-----	-----
071200Z	11.9N	128.7E	-----	-----
071800Z	12.2N	128.0E	-----	-----
080000Z	12.6N	127.3E	-----	-----
080600Z	13.0N	126.6E	294-37	-----
081200Z	13.5N	125.9E	270-15	-----
081800Z	13.8N	125.2E	310-11	-----
090000Z	14.0N	124.5E	132-28	-----
090600Z	14.3N	124.0E	030-7	287-33
091200Z	14.6N	123.8E	312-20	299-51
091800Z	14.9N	123.7E	298-74	285-68
100000Z	15.2N	123.8E	286-121	241-81
100600Z	15.6N	124.0E	278-176	268-123
101200Z	15.9N	124.3E	274-241	277-155
101800Z	16.3N	124.5E	302-107	284-247
110000Z	16.9N	124.5E	074-192	267-320
110600Z	17.5N	124.7E	076-246	262-411
111200Z	18.0N	125.1E	077-278	269-444
111800Z	18.4N	125.5E	155-96	002-215
120000Z	18.9N	125.9E	272-42	071-498
120600Z	19.3N	126.3E	267-48	072-546
121200Z	19.9N	126.5E	269-46	072-624
121800Z	20.4N	126.8E	339-24	155-162
130000Z	20.8N	127.3E	070-126	051-81
130600Z	21.1N	127.9E	064-158	052-103
131200Z	21.3N	128.5E	060-198	053-145
131800Z	21.5N	129.1E	017-119	051-153

AVERAGE 24 HOUR ERROR 105 MI
AVERAGE 48 HOUR ERROR 235 MI



AERIAL PHOTO SHOWING PART OF DAMAGE CAUSED BY ELLEN TO CGLORSTA, CATANDUANES ISLAND, 9 DECEMBER 1961. (OFFICIAL NAVY PHOTO)



DAMAGE TO LOWER AREA OF CGLORSTA. NOTE DAMAGE TO CONCRETE SLABS. (OFFICIAL NAVY PHOTO)



DAMAGE TO INTERIOR. SAND ON FLOOR WAS BLOWN AND WASHED INTO BUILDING. (OFFICIAL NAVY PHOTO)



DAMAGE TO BUILDING AND BOAT CAUSED BY ELLEN, 9 DECEMBER 1961. (OFFICIAL NAVY PHOTO)